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Terms	Documents
l10 and 150 near5 dpi same nozzle	13

Database:
- US Patents Full-Text Database
- US Pre-Grant Publication Full-Text Database
- JPO Abstracts Database
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- Derwent World Patents Index
- IBM Technical Disclosure Bulletins

Search: L28

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Search History

DATE: Saturday, February 01, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L28	l10 and 150 near5 dpi same nozzle	13	L28
L27	l24 and l23	1	L27
L26	l24 and (dpi or nozzle)	1	L26
L25	l24 and (dpi or electrode or channel)	1	L25
L24	('5485183')[PN]	1	L24
L23	L10 and (dpi) same (crosstalk or cross near1 talk or interference or deviation)	135	L23
L22	l10 and (150 near5 dpi) same (chatter)	0	L22
L21	l10 and chatter	72	L21
L20	l10 and (100 near5 dpi) same (electrode or channel)	17	L20
L19	l17 and l18	1	L19
L18	('5881646')[PN]	1	L18
L17	l10 and (150 near5 dpi) same (electrode or channel)	13	L17
L16	l10 and 150 near5 dpi	88	L16
DB=JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L15	ink jet same electrostatic and 150 near5 dpi	1	L15
DB=USPT; PLUR=YES; OP=ADJ			
L14	l13 and l12	1	L14
L13	('5363131')[PN]	1	L13
L12	L10 and (150 near5 dpi) and (crosstalk or cross near1 talk or interference or deviation)	21	L12
L11	L10 and (150 near5 dpi) same (crosstalk or cross near1 talk or interference or deviation)	0	L11
L10	((347/$)!.CCLS.)	23453	L10
L9	L1 and (150 near5 dpi)	7	L9
L8	l7 and l6	1	L8
L7	('6045217')[PN]	1	L7
L6	L1 and (electrode or channel) near10 mu.m same (pitch or distance or spacing or interval or dpi or density)	126	L6
L5	L1 and (electrode or channel) near10 mu.m	190	L5
L4	L1 and deviation same (electrode or channel)	14	L4
L3	L1 and deviation same (electrode or path or channel)	14	L3
L2	L1 and deviation	46	L2
L1	((347/55)!.CCLS.)	652	L1

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l10 and 150 near5 dpi same nozzle	13

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Search History

DATE: Saturday, February 01, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L28	l10 and 150 near5 dpi same nozzle	13	L28
L27	l24 and l23	1	L27
L26	l24 and (dpi or nozzle)	1	L26
L25	l24 and (dpi or electrode or channel)	1	L25
L24	('5485183')[PN]	1	L24
L23	L10 and (dpi) same (crosstalk or cross near1 talk or interference or deviation)	135	L23
L22	l10 and (150 near5 dpi) same (chatter)	0	L22
L21	l10 and chatter	72	L21
L20	l10 and (100 near5 dpi) same (electrode or channel)	17	L20
L19	l17 and l18	1	L19
L18	('5881646')[PN]	1	L18
L17	l10 and (150 near5 dpi) same (electrode or channel)	13	L17
L16	l10 and 150 near5 dpi	88	L16
DB=JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
L15	ink jet same electrostatic and 150 near5 dpi	1	L15
DB=USPT; PLUR=YES; OP=ADJ			
L14	l13 and l12	1	L14
L13	('5363131')[PN]	1	L13
L12	L10 and (150 near5 dpi) and (crosstalk or cross near1 talk or interference or deviation)	21	L12
L11	L10 and (150 near5 dpi) same (crosstalk or cross near1 talk or interference or deviation)	0	L11
L10	((347/$)!.CCLS.)	23453	L10
L9	L1 and (150 near5 dpi)	7	L9
L8	l7 and l6	1	L8
L7	('6045217')[PN]	1	L7
L6	L1 and (electrode or channel) near10 mu.m same (pitch or distance or spacing or interval or dpi or density)	126	L6
L5	L1 and (electrode or channel) near10 mu.m	190	L5
L4	L1 and deviation same (electrode or channel)	14	L4
L3	L1 and deviation same (electrode or path or channel)	14	L3
L2	L1 and deviation	46	L2
L1	((347/55)!.CCLS.)	652	L1

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L Number	Hits	Search Text	DB	Time stamp
1	2	6412916.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/31 13:09
2	1	1999-430358.NRAN.	DERWENT	2003/01/31 13:07
3	25	("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/31 13:37
4	11	(("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.) and (electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same mu.m	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/31 13:38
5	3	(("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.) and (electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same crosstalk	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/31 13:17
6	87	ink near1 jet and (electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same crosstalk	USPAT	2003/01/31 13:18
7	97	347/$.ccls. and (electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same crosstalk	USPAT	2003/01/31 13:21
8	4	347/$.ccls. and (electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same crosstalk same mu.m	USPAT	2003/01/31 13:20
9	28	347/$.ccls. and (nozzle or electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same crosstalk same mu.m	USPAT	2003/01/31 13:30
10	24	347/$.ccls. and (nozzle or electrode or channel) near10 crosstalk near10 (distance or interval or pitch or density or spacing or dpi)	USPAT	2003/01/31 13:25
11	9	(("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.) and (crosstalk$ or interference)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/31 13:28
12	342	347/$.ccls. and (nozzle or electrode or channel) near5 (crosstalk$ or interference)	USPAT	2003/01/31 13:30
13	251	347/$.ccls. and (nozzle or electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same mu.m and (crosstalk$ or interference)	USPAT	2003/01/31 13:31
14	149	347/$.ccls. and (nozzle or electrode or channel) same (distance or interval or pitch or density or spacing or dpi) near5 mu.m and (crosstalk$ or interference)	USPAT	2003/01/31 13:32
15	82	347/$.ccls. and (nozzle or electrode or channel) near5 mu.m near5 (distance or interval or pitch or density or spacing or dpi) and (crosstalk$ or interference)	USPAT	2003/01/31 13:32
16	12	("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.	USPAT	2003/01/31 13:37

17	342	(347/$.ccls. and (nozzle or electrode or channel) near5 (crosstalk$ or interference)) and (crosstalk$ or interference)	USPAT	2003/01/31 13:38
18	7	(("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.) and (crosstalk$ or interference)	USPAT	2003/01/31 13:38
19	7	((("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.) and (electrode or channel) same (distance or interval or pitch or density or spacing or dpi) same mu.m) and ((("6443560" or "6371598" or "6350023" or "6213590" or "6168263" or "6164759" or "5992978" or "5912684" or "5764255" or "5436097" or "4368476" or "4162502").pn.) and (crosstalk$ or interference))	USPAT	2003/01/31 13:41
20	2258	347/$.ccls. and ink near1 jet and electrostatic	USPAT	2003/01/31 13:41
21	23453	347/$.ccls.	USPAT	2003/01/31 13:41
22	21195	347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic)	USPAT	2003/01/31 13:41
23	2258	347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))	USPAT	2003/01/31 13:41
24	404	(347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))) and (crosstalk$ or cross near1 talk or interference)	USPAT	2003/01/31 13:42
25	291	(347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))) and (crosstalk$ or cross near1 talk or interference) same (electrode or channel or nozzle)	USPAT	2003/01/31 13:43
26	132	(347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))) and (crosstalk$ or cross near1 talk or interference) same (electrode or channel or nozzle) same (distance or interval or spacing or pitch or density or dpi)	USPAT	2003/01/31 13:44
27	26	(347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))) and (crosstalk$ or cross near1 talk or interference) same (electrode or channel or nozzle) same (distance or interval or spacing or pitch or density or dpi) same mu.m	USPAT	2003/01/31 13:47
28	12	(347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))) and (crosstalk$ or cross near1 talk or interference) same (electrode or channel or nozzle) near10 mu.m	USPAT	2003/01/31 13:48
29	3	(347/$.ccls. not (347/$.ccls. not (347/$.ccls. and ink near1 jet and electrostatic))) and (crosstalk$ or cross near1 talk or interference) same (electrode or channel) same mu.m	USPAT	2003/01/31 13:49

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L3: Entry 26 of 26 File: USPT Mar 19, 1991

DOCUMENT-IDENTIFIER: US 5001496 A
TITLE: Method for propelling droplets of a conductive liquid

Detailed Description Text (26):
By definition, the ink is equipotential with respect to the electrodes 1 and 6. Preferably, the membrane 5 is electrically conductive, being for example formed by a sheet of copper which also serves as a counter-electrode 6. This arrangement enables interference between neighbouring propelling devices to be avoided, which are spaced in this example at 250 .mu.m from axis to axis, and in particular it enables obstruction of the passage of current in the case of formation of bubbles on an electrode 1 to be avoided. By locating the counter-electrode opposite the electrodes 1, these bubbles do not obstruct the flow of the current between the neighbouring electrodes and the counter-electrode.

Current US Original Classification (1):
347/55

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Search Results - Record(s) 1 through 1 of 1 returned.

☐ 1. Document ID: US 5363131 A

L14: Entry 1 of 1 File: USPT Nov 8, 1994

DOCUMENT-IDENTIFIER: US 5363131 A
TITLE: Ink jet recording head

US PATENT NO. (1):
5363131

Brief Summary Text (4):
The recording heads utilizing the principle of a pump produce the minimum size of an ink droplet which is in the order of 100 to 200 .mu.m, thereby implementing a recording density of 150 to 300 DPI. Although this can ensure practically applicable high-quality recording of binary data such as character data, data including different levels of dot data such as photographs and pictures cannot be reproduced on a dot basis. For this reason, it is required that a single pixel, which is a unit of image data, consist of a plurality of dots and that a density level be expressed by increasing or decreasing the number of dots. And this further requires that an area for a plurality of dots be provided to print a single pixel and that the document image data be sampled at an appropriate density to form the print data. Thus, the number of pixels in the printed document becomes smaller than that in the document image, thereby reducing the resolution.

Detailed Description Text (28):
The drive signals are simultaneously applied to the respective segment electrodes at a plurality of dot forming regions in the above example. If the segment electrodes are arranged closer to one another to improve the resolution, then so-called crosstalk may, in some case, occur, the crosstalk being the phenomenon that a vibration is propagated between two adjacent segment electrodes and that dots are thereby formed on wrong positions. In such a case, as shown, in FIG. 14, the segment electrodes may be divided into two rows, odd and even, and printing is performed by doubling a single dot forming time interval to Tb, with the first half time interval Tb/2 being used by the odd row and the latter half time interval Tb/2 being used by the even row. That is, in the case where dots are formed by using the segment electrodes Sn-1, Sn+1 in the odd row, drive signals are applied to these segment electrodes, while applying a drive voltage to a segment electrode Sn in the even row, the drive voltage being 180.degree.-out-of-phase with the drive signals applied to the segment electrodes Sn- 1, Sn+1 in the odd row and being large enough to cancel crosstalk out. And in the case where a dot is formed using the segment electrode Sn in the even row, a drive signal is applied to the segment electrode Sn while applying drive voltages to the segment electrodes Sn-1, Sn+1 in the odd row, the drive voltages being 180.degree.-out-of-phase with the drive signal applied to the segment electrode Sn and being large enough to cancel crosstalk out. As a result, undesired production of ink droplets due to leaking vibration from adjacent segment electrode regions can surely be prevented.

Detailed Description Text (37):
According to this embodiment, each of the segment electrodes 42 are separated by the grooves 41 so that propagation of a vibration produced at adjacent segment electrodes can be damped by the grooves. Thus, this not only allows the segment electrodes to be arrayed at a smaller pitch so that a recording head with a higher degree of density can be obtained, but also enables restriction of each vibrating region to be released by each groove 41 so that an adequate amount of ink mist can be produced even at a voltage that is lower compared with that applied when the segment electrodes are formed by patterning. In addition, interference in the vibration due to drive signals being

out-of-phase with one another can be reduced, one of the drive signals being applied to adjacent segment electrodes simultaneously. Thus, the recording head can be safeguarded against breakage.

Detailed Description Text (40):
According to this embodiment, not only crosstalk caused by the adjacent segment electrodes can be prevented, but also the supply path of the ink to the ink mist jetting outlet can be simplified.

Detailed Description Text (45):
By the way, the piezoelectric body substrates 59 are disposed on the piezoelectric body substrate 55 at a pitch. Since the gap of a dot non-forming region is made larger than the gap of a dot forming region, there is no likelihood that the ink present in the former gap is misted, thereby preventing crosstalk from being caused.

Detailed Description Text (49):
According to this embodiment, the ink present between the ink mist jetting outlet forming member 66 and the piezoelectric body substrate 63 moves only toward the farther region at which the common electrode 64 and the segment electrodes 65 intersect by surface tension relative to the triangular projections 66a. Upon application of a drive signal to the segment electrode 65 with which to form a dot under this condition, an edge-mode vibration produced at this region acts upon the ink retained in the triangular projections 66a, thereby misting the ink. On the other hand, even if the vibration leaks from adjacent segment electrodes, no ink is misted from the triangular projections 66a, because none is present in the triangular projections, thereby totally preventing crosstalk.

Detailed Description Text (64):
Let us now change the respective widths W, W' of the common electrode 81 and the segment electrode 82. As a result, the widths W, W' taking values 30% or less the thickness h of the piezoelectric body substrate 80 can initiate no vibration adequate to produce ink mist at the edge portion of the piezoelectric body substrate 80, while the widths W, W' taking values 70% or more can produce vibrations even at regions not having to do with ink mist production, thereby not only wasting power but also making it likely to increase crosstalk. Therefore, the optimal widths of the common electrode 81 and the segment electrode 82 range from 30 to 70% the thickness h of the piezoelectric body substrate 80 from the standpoint of ink mist producing efficiency, power utilization, and crosstalk prevention.

Detailed Description Text (76):
As the substrate 115 no longer vibrates due to stoppage of the application of the drive signal, the wedge member 121 blocks the flow path of the ink to the ink mist jetting outlet 120 while brought into resilient contact with the segment electrode 117. As a result, not only the ink is no longer misted uselessly even with crosstalk from the adjacent segment electrodes, but also the ink solvent is no longer dried nor clogs the outlet because of its being shielded from the air by the wedge member 121.

Detailed Description Text (79):
When the application of the drive signal is stopped, the spacer member 129 closes the front end portion of the groove 127 formed on the piezoelectric body substrate 125 so that the application of the ink supplied to the ink mist is stopped. As a result, not only the ink is no longer misted uselessly with crosstalk from the adjacent segment electrodes, but also the ink solvent is not clogged.

Detailed Description Text (83):
While a single monolithic plate spring member is provided so as to cover a plurality of dot forming regions in this embodiment, cuts may be provided by the dot forming region as indicated by the one dot chain lines in FIG. 37 (b), so that crosstalk from adjacent segment electrodes can be prevented.

Detailed Description Text (99):
According to this embodiment, since the piezoelectric body substrate 180 receives the electric fields by dividing itself into two portions thicknesswise, the voltage level to be applied to the common electrode 181 and the segment electrodes 182 to 187 can be reduced to 1/2 to obtain an electric field intensity necessary for producing ink mist. This contributes to implementing an inexpensive drive circuit. By arranging grooves between the adjacent segment electrodes 182 to 187 as indicated by the dotted line 189 in FIG. 45, crosstalk from the adjacent segment electrodes can be reduced, thereby enabling a higher quality printing to be performed.

Detailed Description Text (119):
While the case where the drive signals of the same level are applied both at the time the dot is being formed and at the time the dot is not being formed has been described in this embodiment, it goes without saying that no drive signals may be applied at the time the dot is not being formed and that drive signals of the same phase are applied to the segment electrodes of both vibrating elements only at the time the dot is being formed. In addition, crosstalk from a segment electrode, which is close to segment electrodes to which no dot forming drive signals are applied and which is not contributing to forming a dot, can be prevented totally by applying a drive signal not only of a level appropriate for cancelling out the vibrations leaking from the driven segment electrodes but also of a phase that is 180.degree.-out-of-phase.

Current US Original Classification (1):
347/46

Current US Cross Reference Classification (1):
347/68

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l13 and l12	1

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☐ 1. Document ID: US 6045217 A

L8: Entry 1 of 1 File: USPT Apr 4, 2000

DOCUMENT-IDENTIFIER: US 6045217 A
TITLE: Image recording apparatus gasifying and discharging ink for forming image, improved in ink leakage prevention

US PATENT NO. (1):
6045217

Brief Summary Text (20):
Referring to FIG. 3, electric field shutter 8 includes a plurality of discharge holes 14 for gasified ink 3B. Electric field shutters 8A and 8B are provided at either side of discharge hole 14. The plurality of discharge holes 14 are provided over a length corresponding to the printout width. The interval of the discharge holes is 200 .mu.m with a recording density of 150 dpi. Electric field shutter 8 has one side 8A grounded, and the other provided with electrode 8B in a comb-like manner at the interval of 169 .mu.m corresponding to the recording density.

Brief Summary Text (25):
Referring to FIG. 5, discharge hole 14A of ink 3B has a slit configuration. Electric field shutter 8 is provided at both lower sides of the slit. This slit has a length corresponding to the printing width. It is approximately 200 mm for A4-size and approximately 140 mm for A5-size, for example. The recording density is 150 dpi, and the slit width is 200 .mu.m. A slit-shaped discharge hole has the merit that clogging occurs more scarcely than the discharge hole 14 shown in FIG. 3 provided at an interval according to the resolution. Electric field shutter 8 has one side 8A grounded, and the other supplied with an electrode 8B in comb-like manner at an interval of 169 .mu.m corresponding to the recording density.

Current US Original Classification (1):
347/55

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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l7 and l6	1

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☐ 1. Document ID: US 5485183 A

L27: Entry 1 of 1 File: USPT Jan 16, 1996

DOCUMENT-IDENTIFIER: US 5485183 A
TITLE: Interlaced dot-on-dot printing

US PATENT NO. (1):
5485183

Brief Summary Text (5):
Among the techniques which have been developed for performing printing are interlace techniques in which the spacing between nozzles is such that alternate pixel rows are printed during one printing pass and intervening pixel rows are printed during a subsequent printing pass. Interlacing patterns can be provided to minimize printing defects, such as the horizontal banding effect which results from cross-talk between nozzles, as well as the seaming effect which is caused by variations in the amplitude of the relative movements between printing passes. In addition, particularly in the case of phase change inks, interlacing allows each pixel row to be printed at a time when both adjoining pixel rows have not yet been printed or have both been printed, thereby creating a condition of thermal symmetry, which improves the appearance of the resulting printed image. In addition, for a given image resolution, expressed in terms of dots per inch (dpi), interlaced printing of the type described above makes possible an adequate spacing between nozzles which simplifies print head manufacture.

Current US Original Classification (1):
347/41

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 1. Document ID: US 5881646 A

L19: Entry 1 of 1 File: USPT Mar 16, 1999

DOCUMENT-IDENTIFIER: US 5881646 A
TITLE: Method and apparatus for image recording by emitting evaporated ink onto a recording medium

US PATENT NO. (1):
5881646

Detailed Description Text (5):
FIG. 2 is a perspective view showing an example of a structure of emission opening 14 shown in FIG. 1. FIG. 3 is a perspective view showing another example of the structure of emission opening 14 shown in FIG. 1. Referring to FIG. 2, on an upper portion of print head 1, a plurality of emission openings 14 are formed over a length which corresponds to the width of printing. The space between each of the plurality of emission openings 14 is set to 169 .mu.m, assuming that the recording density is 150 dpi. The emission opening 14 may be a slit 14a as shown in FIG. 3, with electrostatic shutter 8 including electrodes 8a and 8b provided on both sides of the longer side of slit 14a. The length L of slit 14a corresponds to the printing width in a line head, which is about 200 mm for an A4 size sheet, about 140 mm for an A5 size sheet. The width W of slit 14a is 200 .mu.m when the recording density is 150 dpi. The slit 14a shown in FIG. 3 is advantageous in that clogging is less likely as compared with the emission opening 14 of FIG. 2.

Current US Cross Reference Classification (1):
347/89

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